

# Notice of Allowability

Application No.

09/502,390

Examiner

Shawn S. An

Applicant(s)

BROOKS ET AL.

Art Unit

2621

## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 2/28/06.
2. ☒ The allowed claim(s) is/are 16-19,23,24,26,31-33,35 and 37.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All   b) ☐ Some\*   c) ☐ None   of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

**EXAMINER'S AMENDMENT**

I. An Examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to Applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

**IN THE CLAIMS:**

**A)** Please cancel claims 1-15, 20-22, 25, 27-30, 34, and 36.

**B)** Please amend claims 16, 17, 19, 23-24, 26, 32-33, 35, and 37 as follows:

16. (Currently Amended) A program product for a processor for dynamically changing characteristics of an input video stream to meet requirements for a plurality of different output video streams comprises:

code configured to direct the processor to obtain frames of data derived from the input video stream;

code configured to direct the processor to crop each frame of data derived from the input video stream to extract at least a portion of each frame of data;

code configured to direct the processor to derive requirements for the output video streams, including encoding formats for the output video streams;

code configured to direct the processor to change characteristics of the frames of data in response to the respective requirements of the output video streams, to provide different characteristic changes for each output video stream, including code to provide different bit rates that correspond to both multiple different client device capabilities and channel conditions, to resize, to change number of frames, and to change color depth;

Art Unit: 2621

code configured to direct a the processor to respectively encode characteristic-changed frames of data to form each of the output video streams in their respective encoding format,

wherein the codes to crop, to provide different bit rates, to resize, to change number of frames, to change color depth, and to encode include code to share data with each other and include server-side code to use a transcoding session to perform the crop, provide different bit rates, resize, change number of frames, change color depth, and encode;

wherein the transcoding session generates simultaneous output video streams from the input video stream; and

server-side code configured to direct the processor to select multiple simultaneous output video streams that are generated by the transcoding session to send to corresponding multiple client devices, including server-side code to select simultaneous output video streams having the different bit rates that correspond to both multiple different client device capabilities and channel conditions, at least some of the simultaneous output video streams having a bit rate that exceeds a bit rate capability of a least-capable client device; and

code configured to direct the processor to encrypt at least one of the output video streams,

wherein a horizontal resolution of a frame from at least one of the output video streams is a fractional multiple of a horizontal resolution of a frame of data derived from the input video stream,

wherein at least some of the output video streams can have same encoding formats but differences in frame rate, bit rate, color depth, color format, or resolution,

wherein if the input video stream includes compressed digital data, the server-side code to use the transcoding session is configured to de-compress the compressed digital data into decompressed data and to re-compress the decompressed data so that some of the output video streams have different compression formats, and

wherein at least some of the code to resize, to change color depth, to change number of frames, and to provide different bit rates includes:

code configured to direct the processor to at least one of upsample, increase color depth, increase number of frames, and increase bit rate, respectively, of the simultaneous output video streams during transmission if the capabilities of client devices or channel conditions permit such increases; and

code configured to direct the processor to at least one of subsample, decrease color depth, decrease number of frames, and decrease bit rate, respectively, of the simultaneous output video streams during transmission if desired characteristics for the output video streams require a decrease from those of the input video stream,

wherein the codes to increase and decrease include code to increase and decrease dynamically and differently for each of the simultaneous output video streams, in response to changes in either or both capabilities of client devices or channel conditions during transmission,

wherein the codes reside on a tangible media.

17. (Currently Amended) The program product of claim 16

wherein the requirements comprise spatial bandwidth requirements; and

wherein the code configured to direct the processor to change characteristics of the frames of data comprises code configured to direct the processor to change spatial bandwidth used by the frames of data, in response to the spatial bandwidth requirements, to any vertical resolution based at least in part on respective client device characteristics, including changes to the spatial bandwidth of the simultaneous output video streams during transmission.

19. (Currently Amended) The program product of claim 16

wherein ~~bandwidth~~ requirements comprise color ~~bandwidth~~ format requirements; and

Art Unit: 2621

wherein the code configured to direct the processor to change characteristics of the frames of data comprises code configured to direct the processor to change color ~~bandwidth~~ format used by the frames of data in response to the color ~~bandwidth~~ format requirements.

23. (Currently Amended) A method for dynamically changing characteristics of an input video stream to meet requirements for a plurality of different output video streams comprises:

obtaining frames of data derived from the input video stream;

cropping each frame of data derived from the input video stream to extract at least a portion of each frame of data;

deriving requirements for the output video streams, including multiple different encoding formats respectively for the output video streams;

changing characteristics of the frames of data in response to the respective requirements of the output video streams, to provide different characteristics for each output video stream, including providing different bit rates that correspond to both multiple different client device capabilities and channel conditions, resizing, changing number of frames, and changing color depth;

respectively encoding characteristic-changed frames of data to form the each of the plurality of the output video streams,

wherein the cropping, providing different bit rates, resizing, changing number of frames, changing color depth, and encoding can share data with each other and use a transcoding session at a server to perform the cropping, providing different bit rates, resizing, changing number of frames, changing color depth, and encoding,

wherein the transcoding session generates simultaneous output video streams from the input video stream; and

at a the server, selecting multiple simultaneous output video streams that are generated by the transcoding session to send ~~in their entirety~~ to corresponding multiple client devices and which correspond to capabilities of such client devices, including server selection of simultaneous output video streams having the different bit

rates that correspond to both multiple different client device capabilities and channel conditions, at least some of the simultaneous output video streams having a bit rate that exceeds a bit rate capability of a least-capable client device,

encrypting at least one of the output video streams,

wherein a horizontal resolution of a frame from at least one of the output video streams is a fractional multiple of a horizontal resolution of a frame of data derived from the input video stream,

wherein at least some of the output video streams can have same encoding formats but differences in frame rate, bit rate, color depth, color format, or resolution,

wherein if the input video stream includes compressed digital data, the transcoding session de-compresses the compressed digital data into decompressed data and re-compresses the decompressed data so that some of the output video streams have different compression formats, and

wherein at least some of the resizing, changing color depth, changing number of frames, and providing different bit rates includes:

upsampling, increasing color depth, increasing number of frames, and increasing bit rate, respectively, of the simultaneous output video streams during transmission if the capabilities of client devices or channel conditions permit such increases; and

subsampling, decreasing color depth, decreasing number of frames, and decreasing bit rate, respectively, of the simultaneous output video streams during transmission if desired characteristics for the output video streams require a decrease from those of the input video stream,

wherein the increasing and decreasing can be performed dynamically and differently for each of the simultaneous output video streams, in response to changes in either or both capabilities of client devices or channel conditions during transmission.

24. (Currently Amended) The method of claim 23 wherein the requirements comprise spatial resolution requirements; and

wherein changing characteristics the frames of data comprises changing vertical spatial resolution used by the frames of data in response to the spatial resolution requirements.

26. (Currently Amended) The method of claim 23 wherein the requirements comprise color format requirements; and

wherein changing characteristics used by the frames of data comprises changing color ~~bandwidth~~ format used by the frames of data in response to the color format requirements.

32. (Currently Amended) The method of claim 23 wherein changing the characteristics includes changing ~~frame-rate~~ the number of frames to improve quality, wherein changing ~~frame-rate~~ the number of frames includes reducing frame rate differently for each session that respectively generates each output video stream and based on respective encoding formats and client device characteristics associated with each output video stream, ~~the method further comprising increasing the frame rates of at least some of the output video streams in response to changes in both the client device characteristics and channel conditions that permit frame rate increase.~~

33. (Currently Amended) The method of claim 23 wherein the input video stream ~~is in a compressed~~ can have an uncompressed digital format.

35. (Currently Amended) The program product of claim 16 wherein the input video stream ~~is in a compressed~~ can have an uncompressed digital format.

37. (Currently Amended) The program product of claim 16 wherein some of the simultaneous output video streams have different encoding formats, the

Art Unit: 2621

different encoding formats including both an MPEG compression format and a non-MPEG format.

**REMARKS:**

II. Claims 1-15, 20-22, 25, 27-30, 34, and 36 have been canceled, and claims 16, 17, 19, 23-24, 26, 32-33, 35, and 37 have been amended as discussed above, as authorized by Applicant's attorney, Dennis M. de Guzman (Reg. No. 41,702) on 5/11/06.

III. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to *Shawn S. An* whose telephone number is 571-272-7324.



**SHAWN AN  
PRIMARY EXAMINER**

5/12/06



### **Reasons for Allowance**

1. As per Applicant's instructions as filed on 2/28/06, claims 1, 8, 16-17, 23, and 30 have been amended, and claims 33-37 have been newly added.

2. Claims 16-19, 23-24, 26, 31-33, 35, and 37 are allowed after entering the Examiner's Amendment as discussed in the EXAMINER'S AMENDMENT section.

3. Claims 16-19, 23-24, 26, 31-33, 35, and 37 as amended as discussed above are allowed as having incorporated novel features (*amended independent claim limitations*).

The prior art of record fails to anticipate or make obvious the novel features (see amended independent claim limitations as discussed in the EXAMINER'S AMENDMENT section).

Any comments considered necessary by Applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

4. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to *Shawn S. An* whose telephone number is 571-272-7324.

5. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Art Unit: 2621

6. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



**SHAWN AN**  
**PRIMARY EXAMINER**

5/12/06